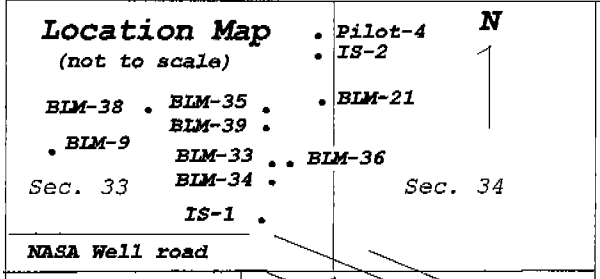
WSTF We.. Borehole Lithologic/Geop..ysical log

Location Map

(not to scale)



Location Description

Quarter 1: SW 1/4 Section: 33

Quarter 2: NW 1/4 Township: T20S

Quarter 3: SE 1/4 Range: R3E

Site I.D: NASA-WSTF Location I.D: BLM-39

County and State: Dona Ana County, New Mexico

Site Coordinates: N-229340.25 E-407598.37

Ground Elevation: 4634.85'

Total Depth of Borehole: 620'

Depth to Bedrock and Type: 365'-Altered Rhyolite Tuff

Depth to Groundwater from Geophysics: 390'

Drilling Method(s): Mud rotary, reamed 17.5" hole to 120'. Set 14" OD surface casing to 118'. Drilled 12.25" hole to 620'.

Drilling Contractor: Stewart Brothers Drilling Co.

Geophysical Survey Contractor: Southwest Geophysical, Inc.

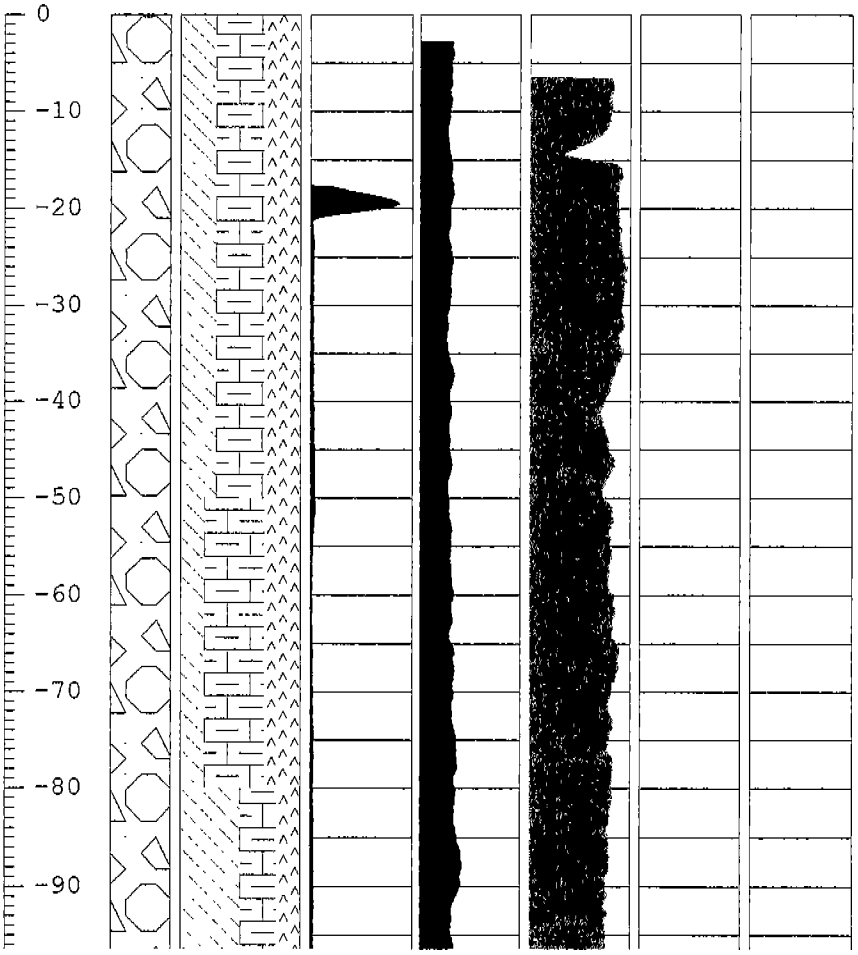
ATSC Field Representative(s): G. Giles, J. Pearson and M. Rivera.

Dates Drilling Started and Completed: 3/6/99 to 3/16/99

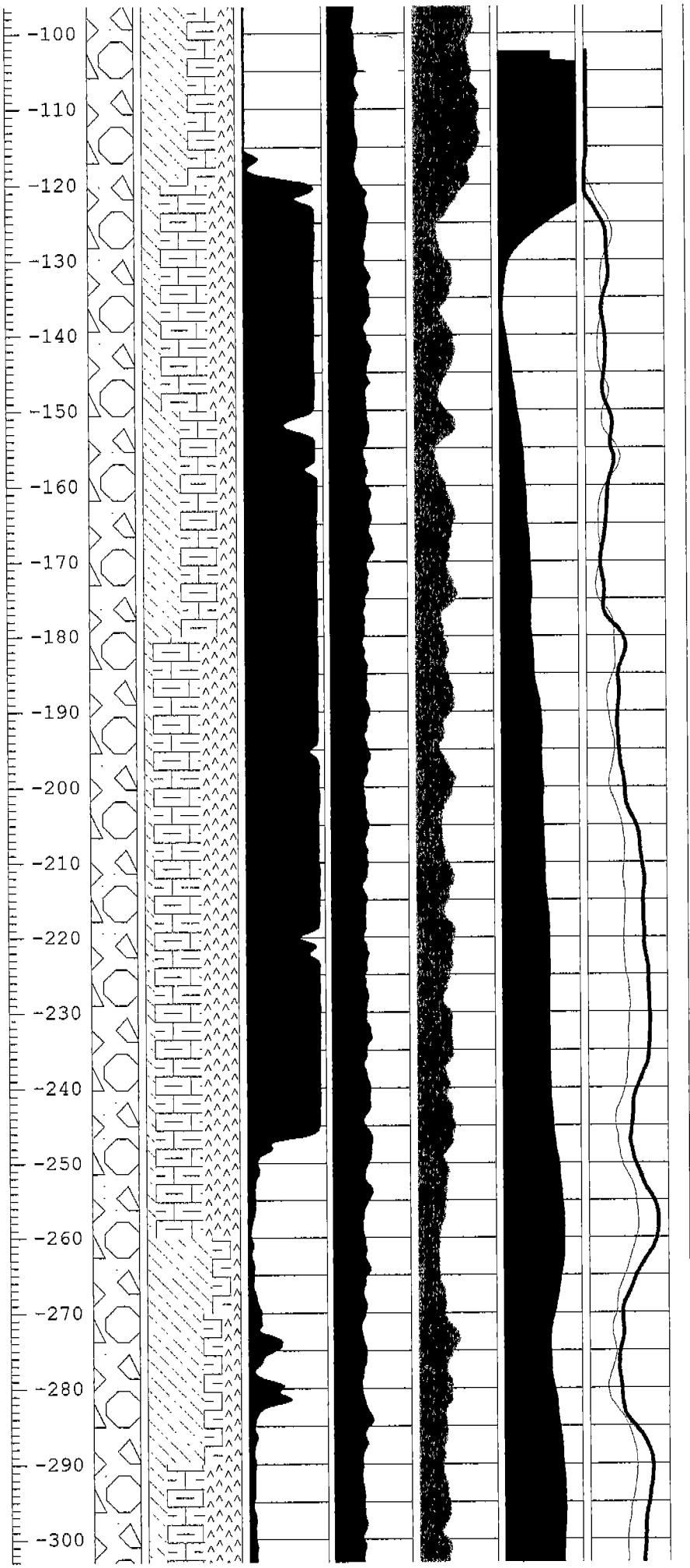
Comments: Retrofit Westbay well inside 4.5" OD stainless steel casing; contains 3 sampling zones. Lithologic samples collected every 10'.

Location Description: Well BLM-39 is located approximately 1.5 miles northwest of the 100 Area just north of the NASA well road.

Depth (Feet)	Lith-ology	Visual Percent 0 100	Sonic Porosity (Msec./ ft.) 0 120	Gamma API -65 350	Neutron API 0 70	SP (Milli-volts) -50 25	Resis-tivity (OHM-M) 64"-green 16"-red -5 210	Lithologic Description

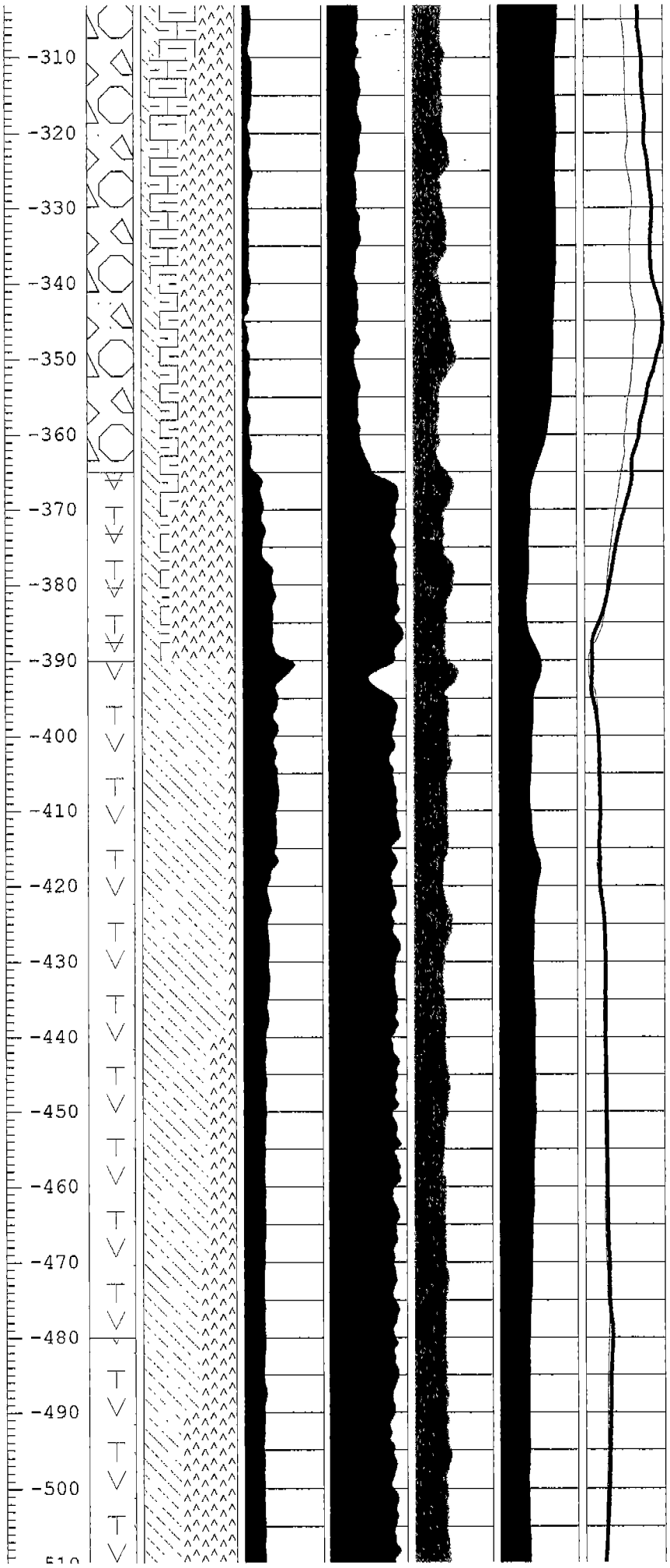


ALLUVIUM: Santa Fe Group (0-365 feet): Alluvial cuttings consist of polygenetic, multi-colored clasts with localized clay-rich intervals. Clasts generally comprise 30-60% of the lithologic samples. Clasts within the alluvium consist of: 1) 0-50% gray black (N2) to green black (5GY 2/1), angular to rounded, coarse sand to coarse gravel-sized, micritic limestone clasts that display abundant calcite-filled fracture veins, 2) 20-60% moderate reddish brown (10R 4/6), gray orange (10YR 7/4) to gray green (10GY 5/2), angular to subrounded, coarse sand to gravel-sized, volcanic clasts (rhyolite, rhyolite tuff, andesite, clay-altered volcanics, dacite, rhyodacite), 3) 0-70%, pale red brown (10R 5/4) to light brown (5YR 6/4) clay. Other clasts observed include gray green (10GY 5/2) chert, disseminated milky quartz, and pale red brown silt (10R 4/6). The abundance of clay and volcanic clasts increases with depth. The Santa Fe Group Alluvium directly overlies Tertiary volcanic bedrock (altered volcanic rock).



ALLUVIUM: Santa Fe Group (260-290 feet): 30-foot thick, clay-rich horizon.

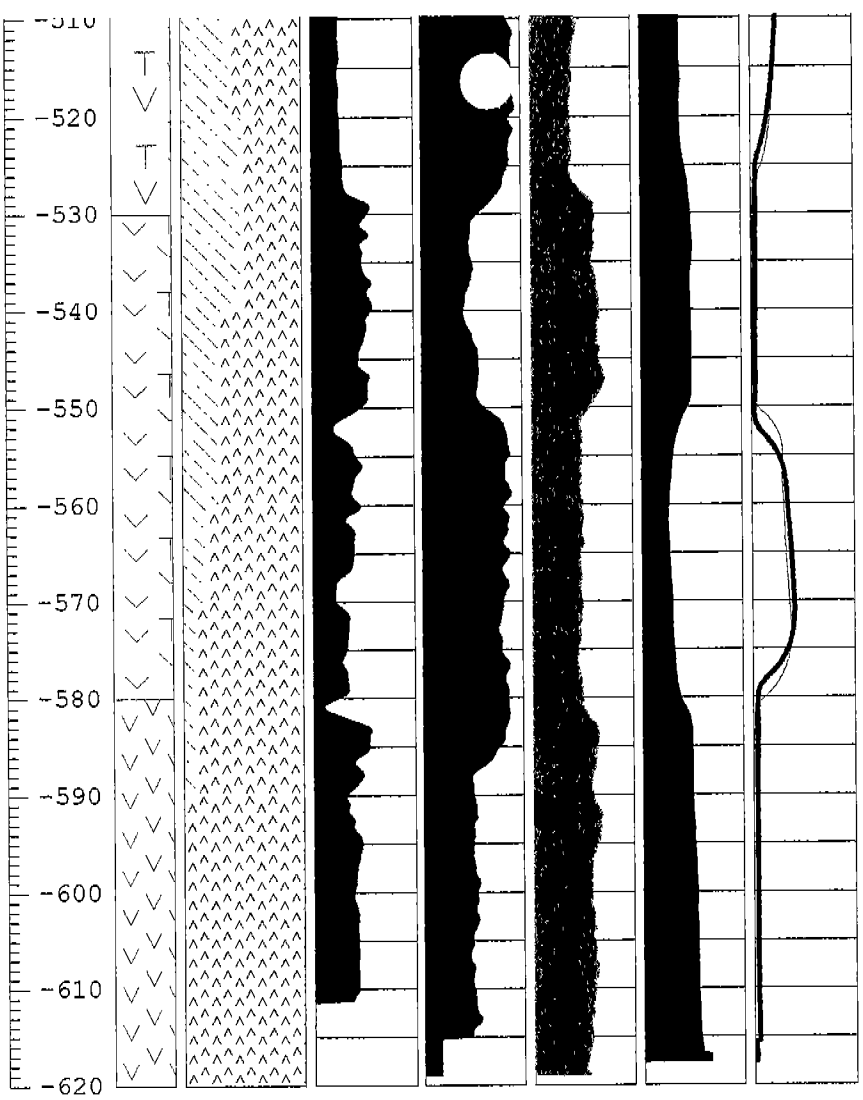
ALLUVIUM: Santa Fe Group (290 to 365 feet): Change from clay-rich cuttings to volcanic-rich cuttings.



ALTERED RHYOLITE TUFF: (365-390 feet): Altered rhyolite tuff is pinkish gray (5YR 5/1) to light brown (5YR 6/4) and weathers the same. This rock consists of 10% subhedral plagioclase phenocrysts and 10% subhedral quartz phenocrysts within an 80% clay-altered, felsic matrix. The chips are extensively altered and break easily between the fingers.

RHYOLITE TUFF: (390-490 feet): Rhyolite tuff is pinkish gray (5YR 5/1) and weathers the same. This rock consists of 10% subhedral plagioclase phenocrysts, 10% subhedral quartz phenocrysts, 10% mafic phenocrysts (amphibole/biotite) within a 70% aphanitic groundmass. Note: from 390 to 490 feet the amount of clay alteration decreases with depth.

RHYOLITE TUFF: (490-540 feet): Rhyolite tuff is moderate red (5R 5/4) and weathers moderate reddish brown (10R 4/6). This rock consists of minor anhedral to subhedral quartz, plagioclase, and biotite within an aphanitic groundmass. Clay alteration varies from 40 to 50%.



INTERLAYERED RHYOLITE AND RHYOLITE TUFF: (540-5 feet): This unit consists of successive, interlayered volcanic flows. The rhyolite tuff layers are identical to the rhyolite tuff located between 390-490 feet, while the rhyolite is very pale orange (10YR 8/2) and weathers the same. The rhyolite is largely aphanitic and lacks distinguishable phenocrysts. This unit consists of 30% degraded clay.

RHYOLITE: (590-620 feet): Rhyolite is moderate reddish brown (10R 4/6) and weathers the same. This rock is porphyritic and consists of minor (<25%), subhedral quartz and feldspar phenocrysts within a light red (5R 6/6) aphanitic groundmass. This unit contains minor clay alteration (5%).